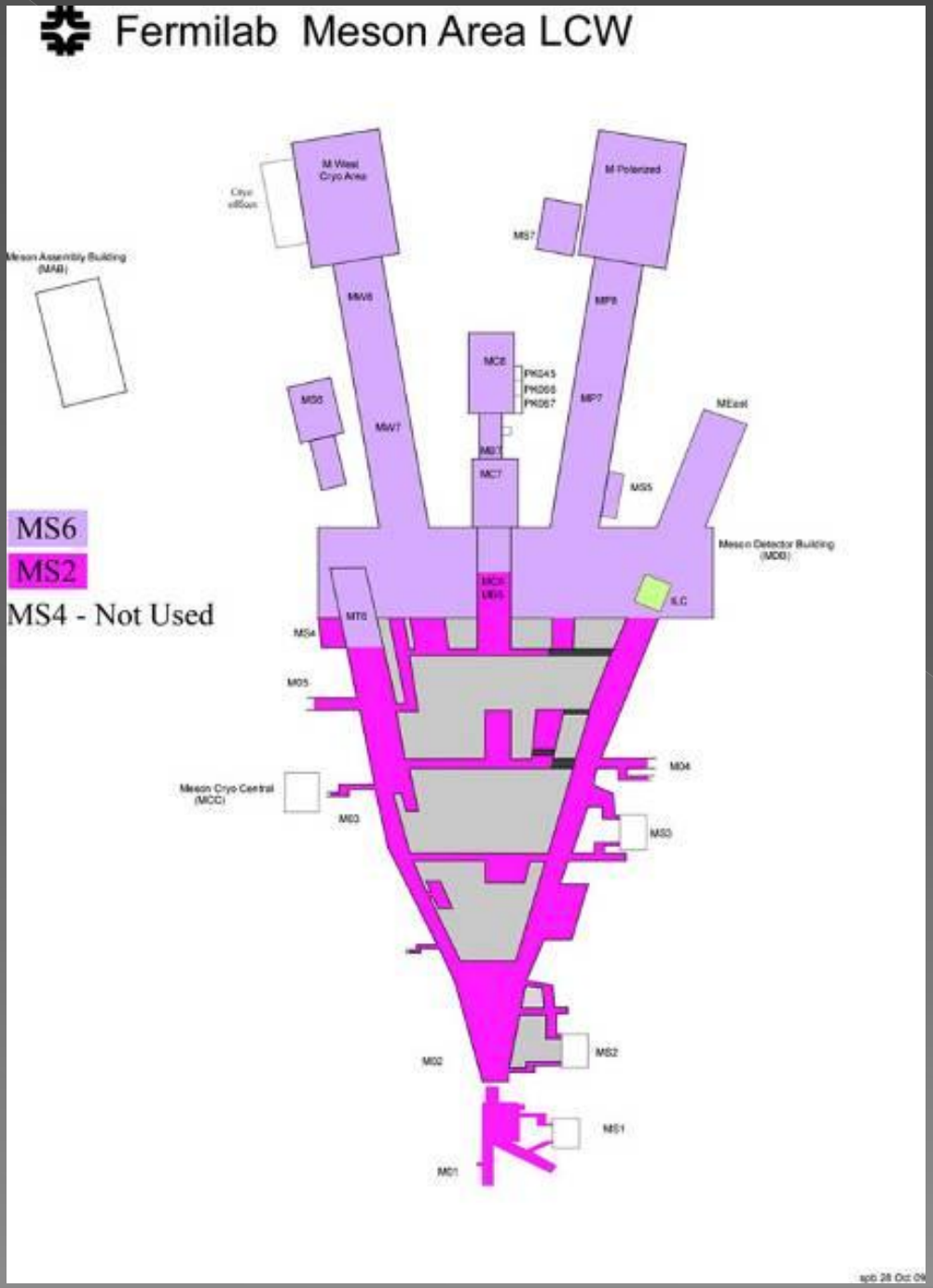
Turning on the MS2 LCW System, and filling the expansion tank when needed.



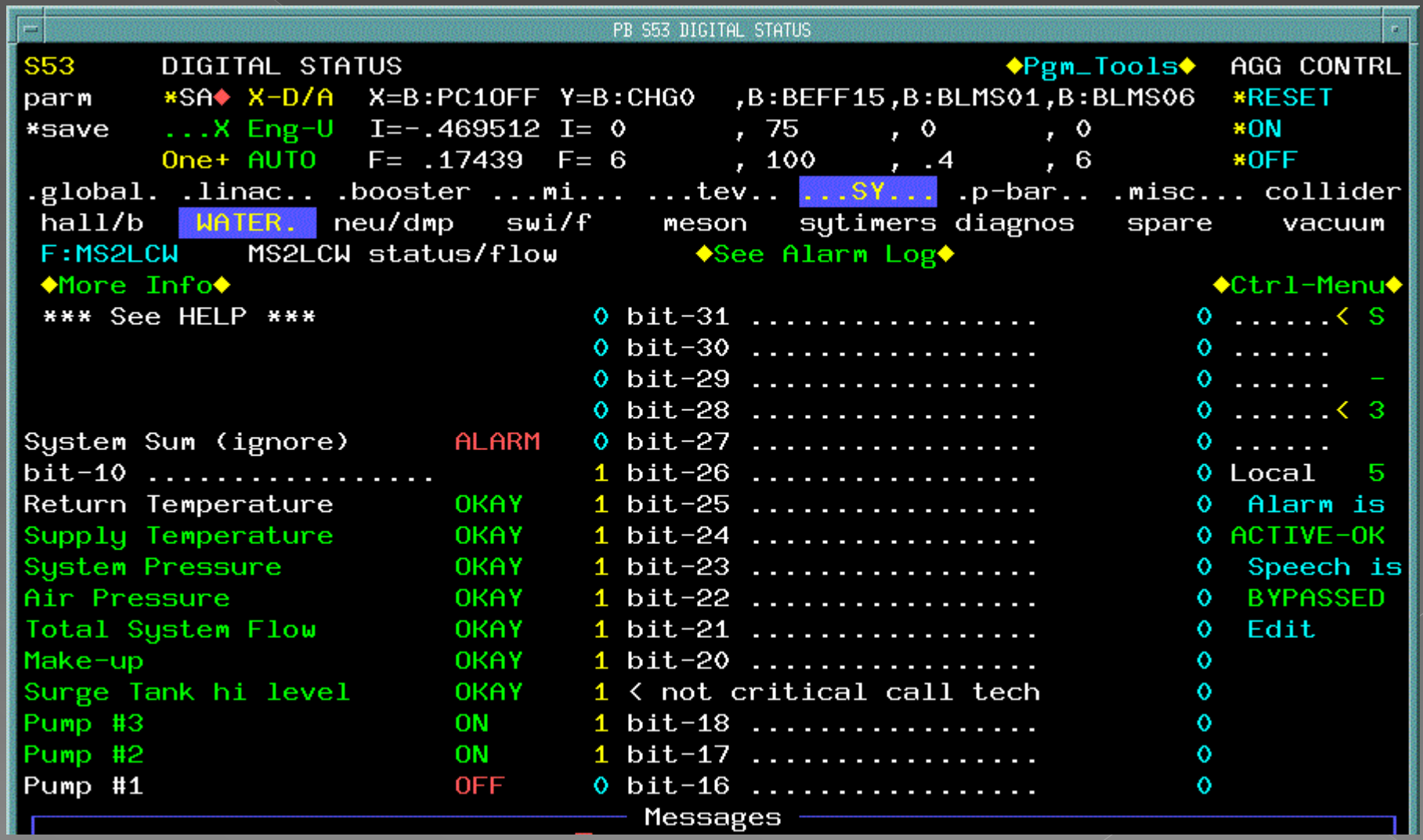
This map shows what areas, Service Buildings and enclosures, the 2 LCW systems cover.

The MS2 LCW System

The MS2 LCW system supplies cooling water for the power supplies at MS1, MS2, MS3 & MS4, in addition to the magnets from F2 through M05 & MC6. And let’s not forget it supplies water to heat exchange with the M01 RAW system.

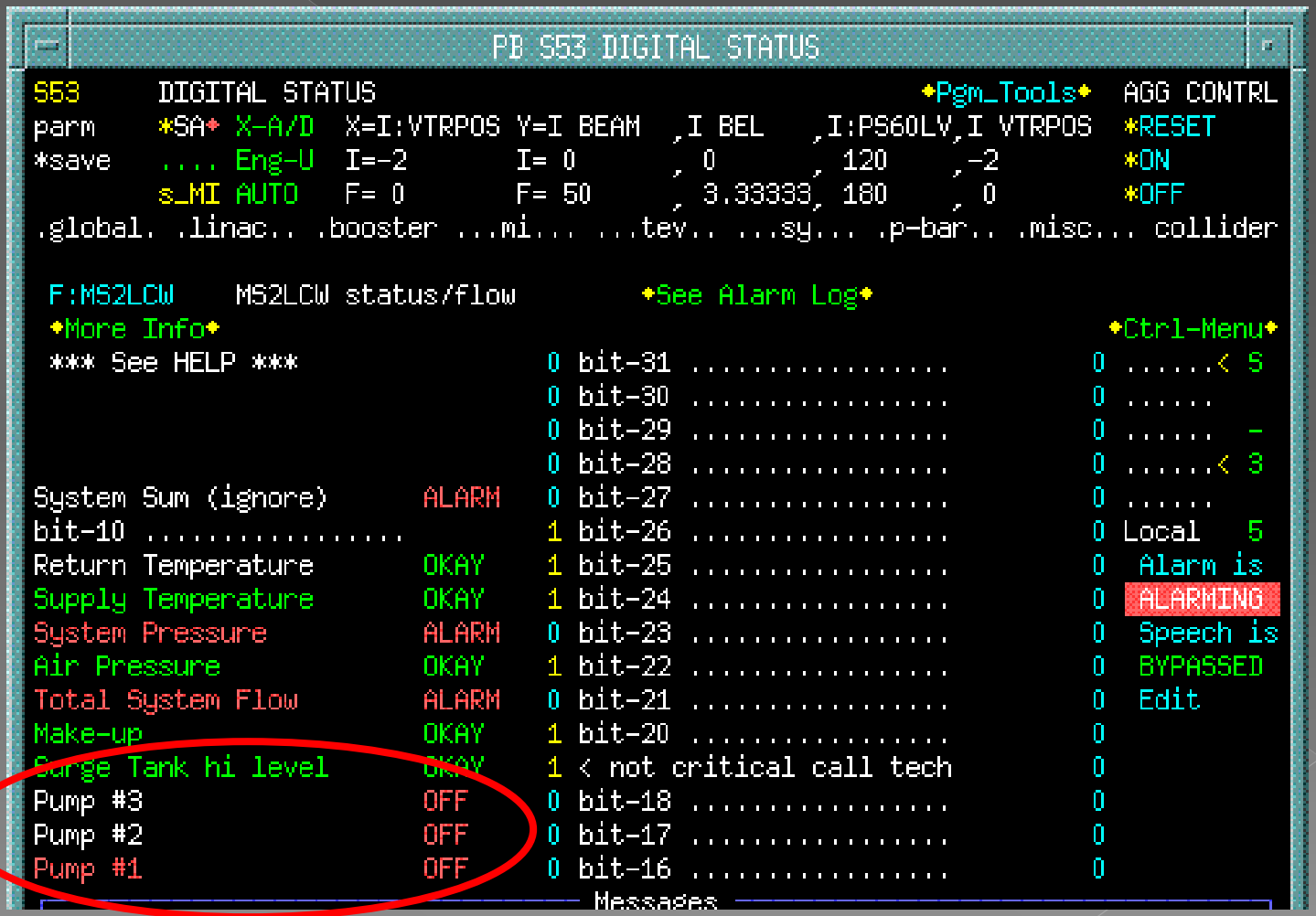
The LCW system consists of 3 pumps, normally we use 2 pumps and they are located in the LCW room at MS2

The MS2 LCW system has an ACNET parameter and will come into alarm if a pump trips off or when the expansion tank is low.

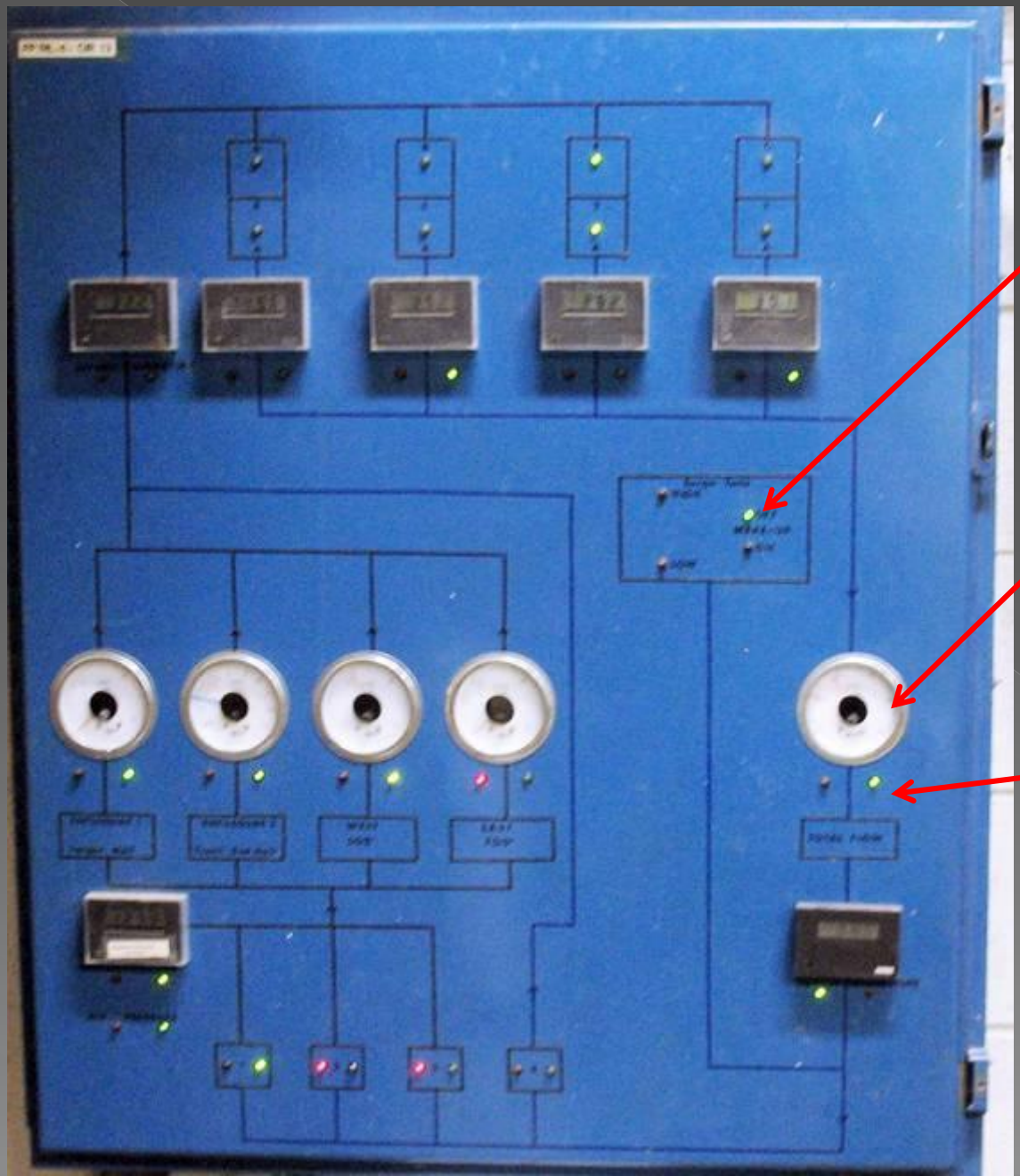


Here we see the System Sum in alarm and all 3 pumps off. We need to turn them on. The LCW Controller chassis at MS2 will show which Pump(s) are needed to be on to run, the next slides will show how to turn on.

Don’t forget that the MS2LCW system needs to be on to turn on M01RAW.



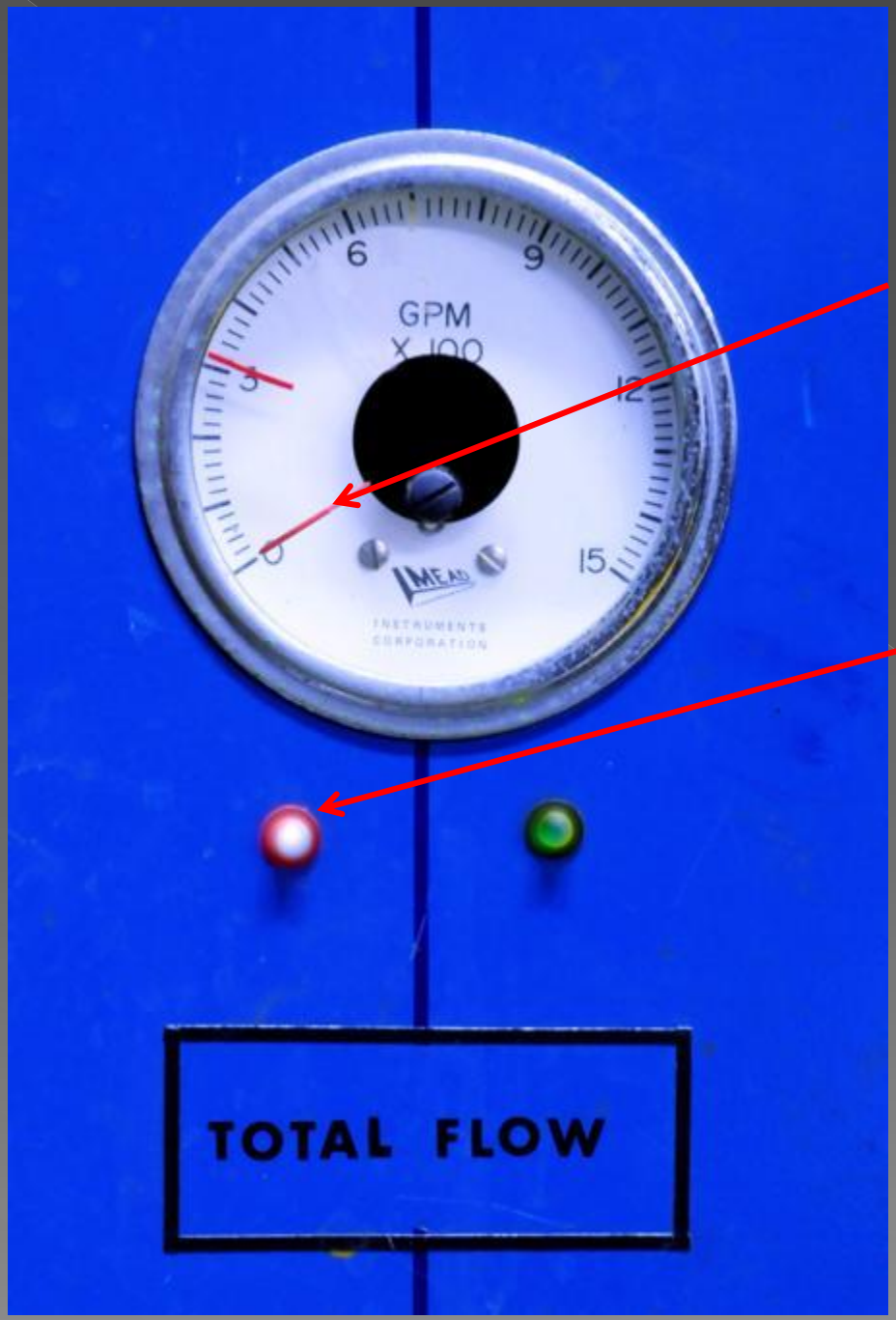
The Blue Box controller



Make-up indicator

Flow meter shows the rate of the water flowing through the pipes.

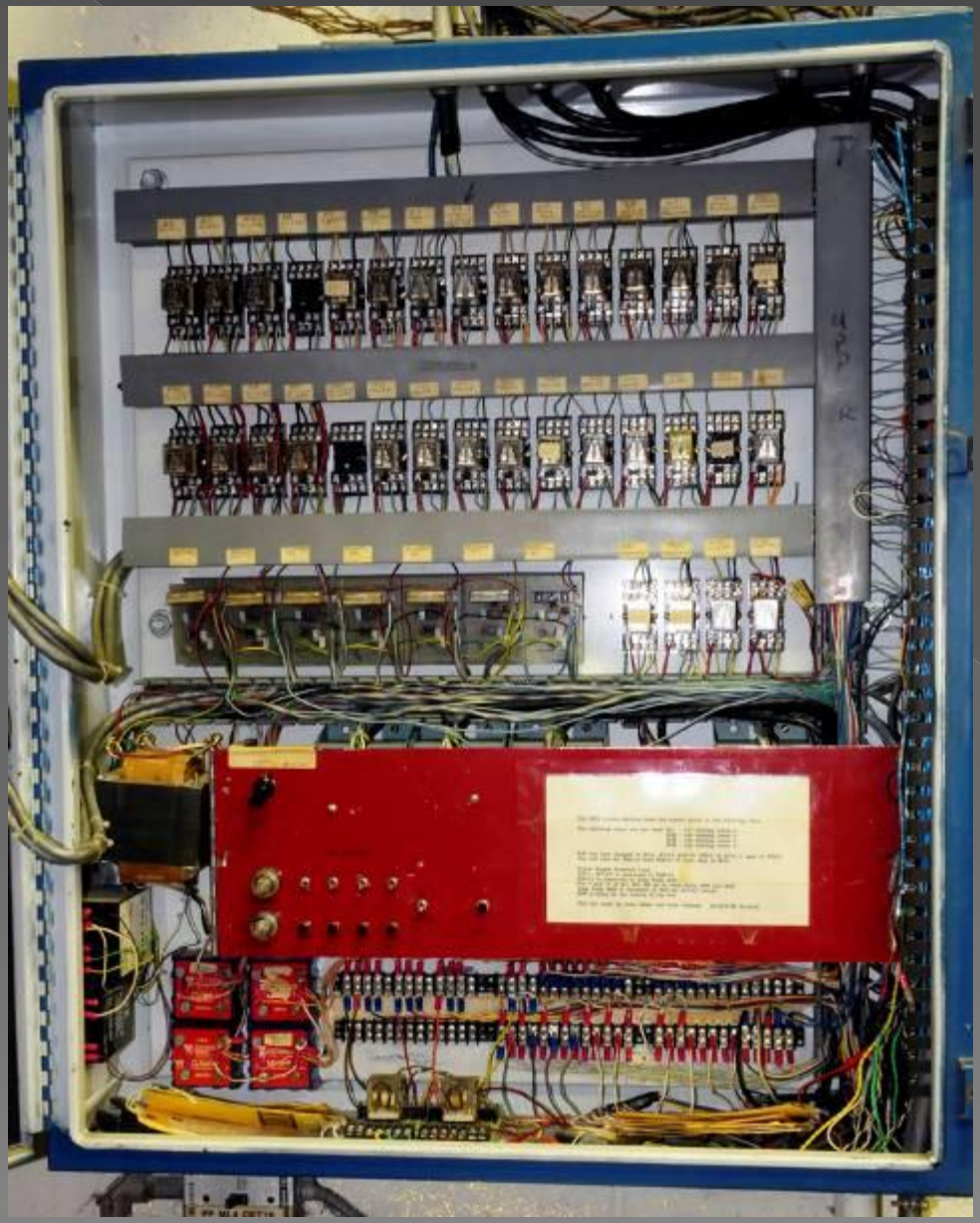
The System LEDs show that the system is on.



Here we see the flow meter at 0

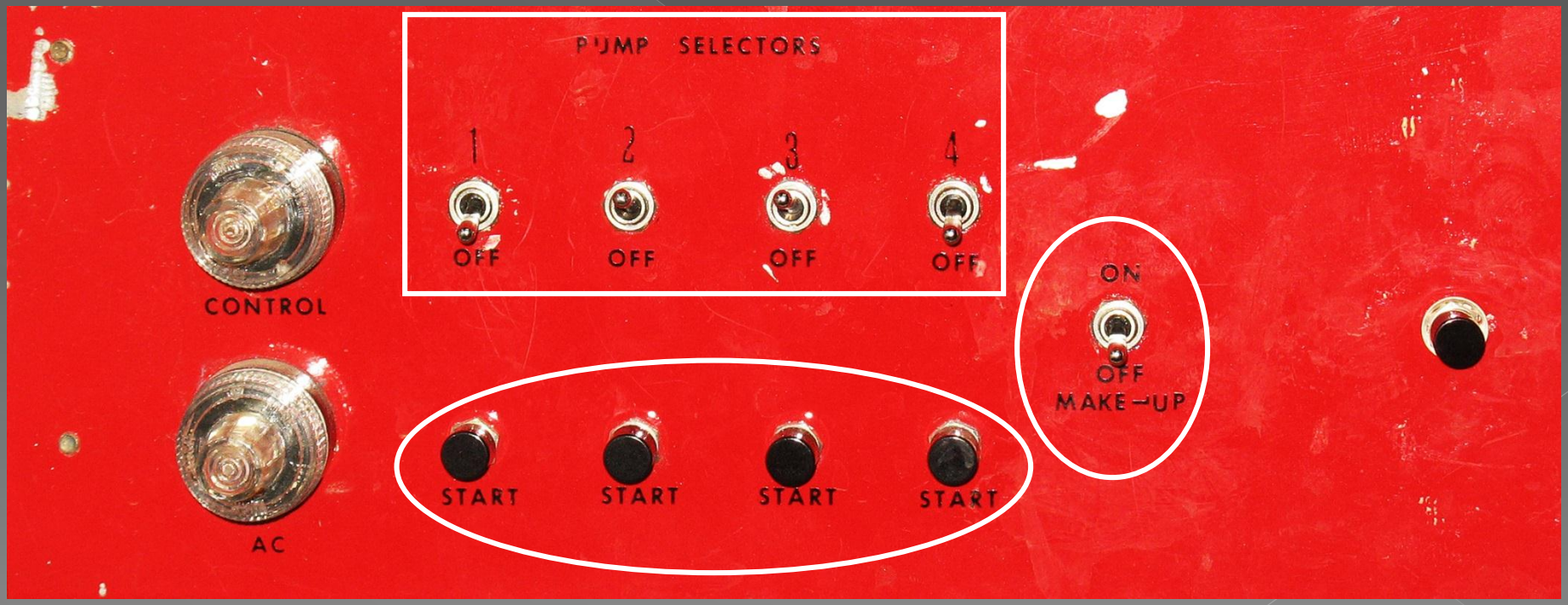
and the red LED is lit, no flow.

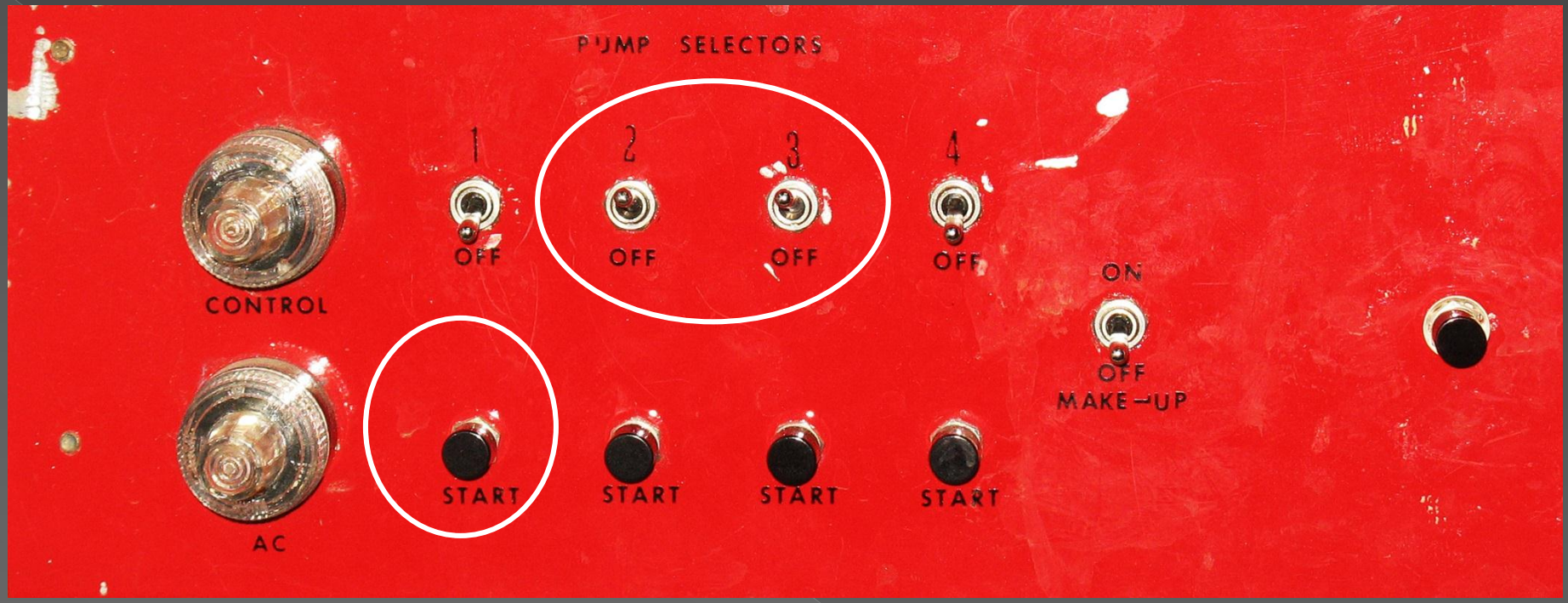
Let’s open the blue door and see what’s inside.



Here’s what inside the Blue Box.

We are mostly concerned with the red panel. The panel has 4 toggle switches for the 3 pumps and below each toggle switch is a black button used to turn on the pump. In addition to the right is a switch to turn on the makeup for the expansion tank.

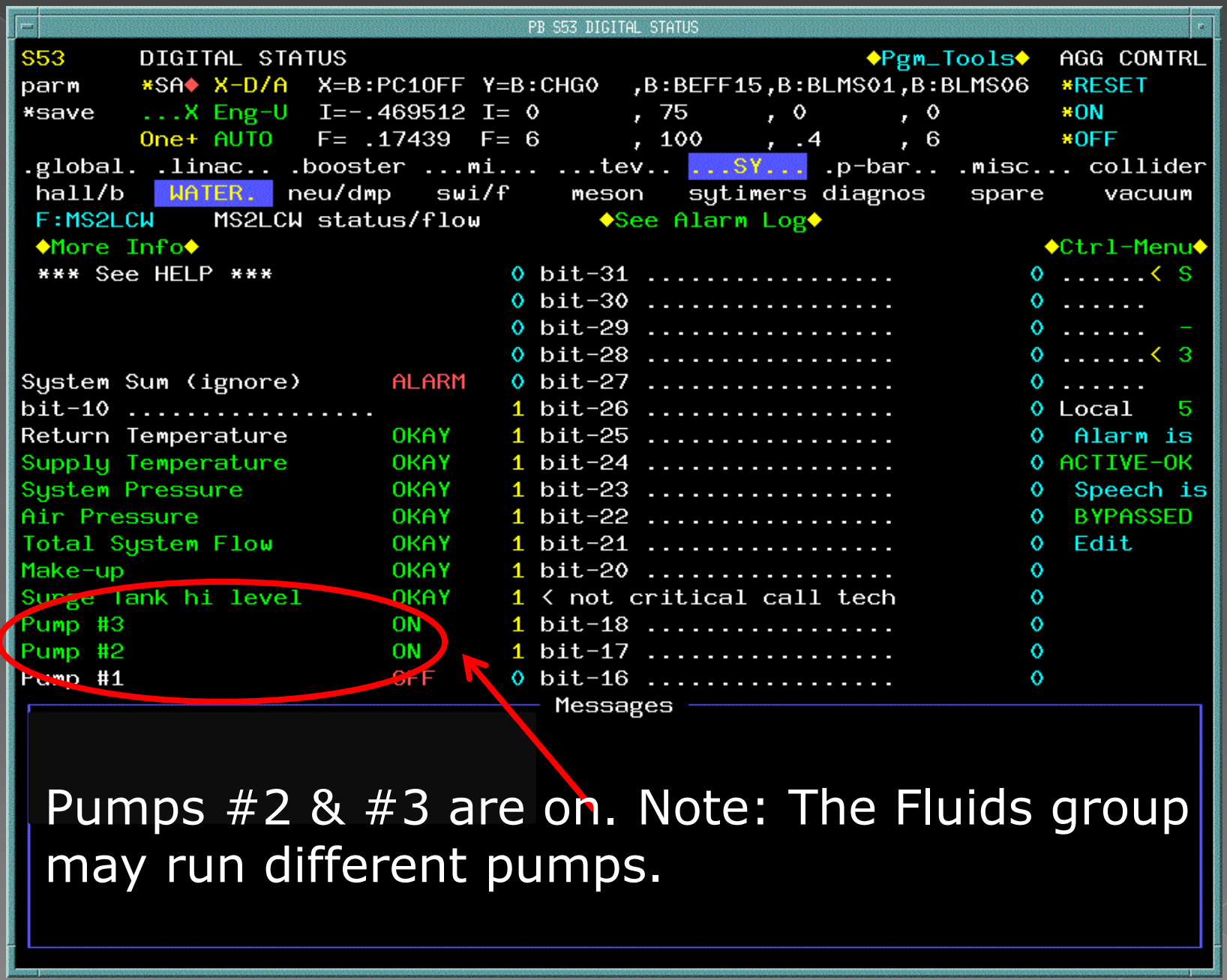




Here we see that we are using pumps 2 & 3, the toggle switches are flipped to ON. To turn the MS2 LCW System on, press the start buttons for both pumps and watch the flow gauge on the front panel.

Note: The Water Works group may change which pump they are using, so DO NOT change the pump switches. Questions contact the Water Group.

When the system is up and running, the flow meter will show flow, GPM, above the red line and the green LED will be lit.

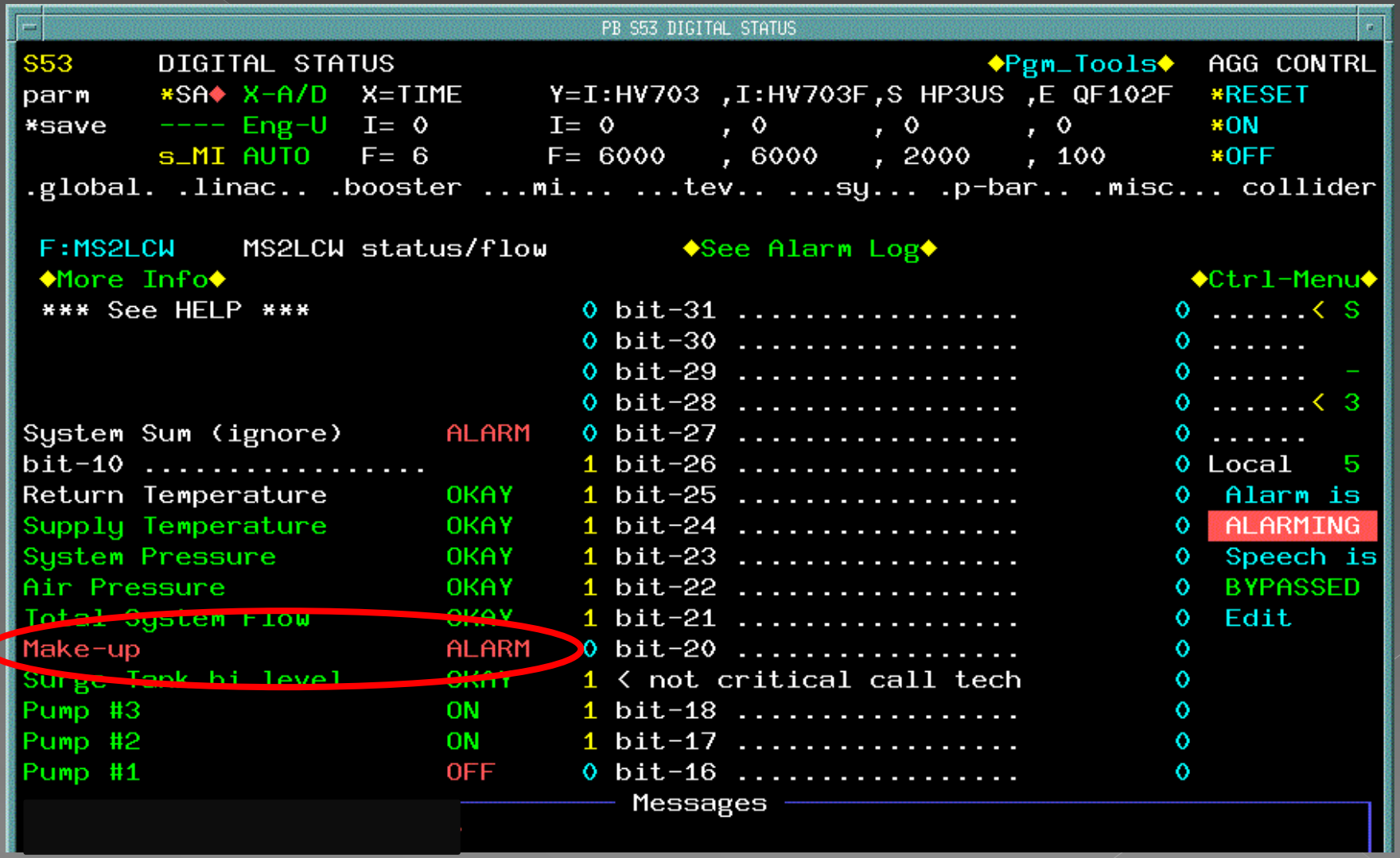


Pumps #2 & #3 are on. Note: The Fluids group may run different pumps.

We may need to fill the expansion tank when it gets low

If the expansion tank needs filling we most likely have gotten a ACNET alarm. At the chassis, or blue box, the Make-up ON LED will be lit.

Here we see the System Sum in alarm and Make-up in alarm. We need to add water to the expansion tank, the following slides will show you how to add water.



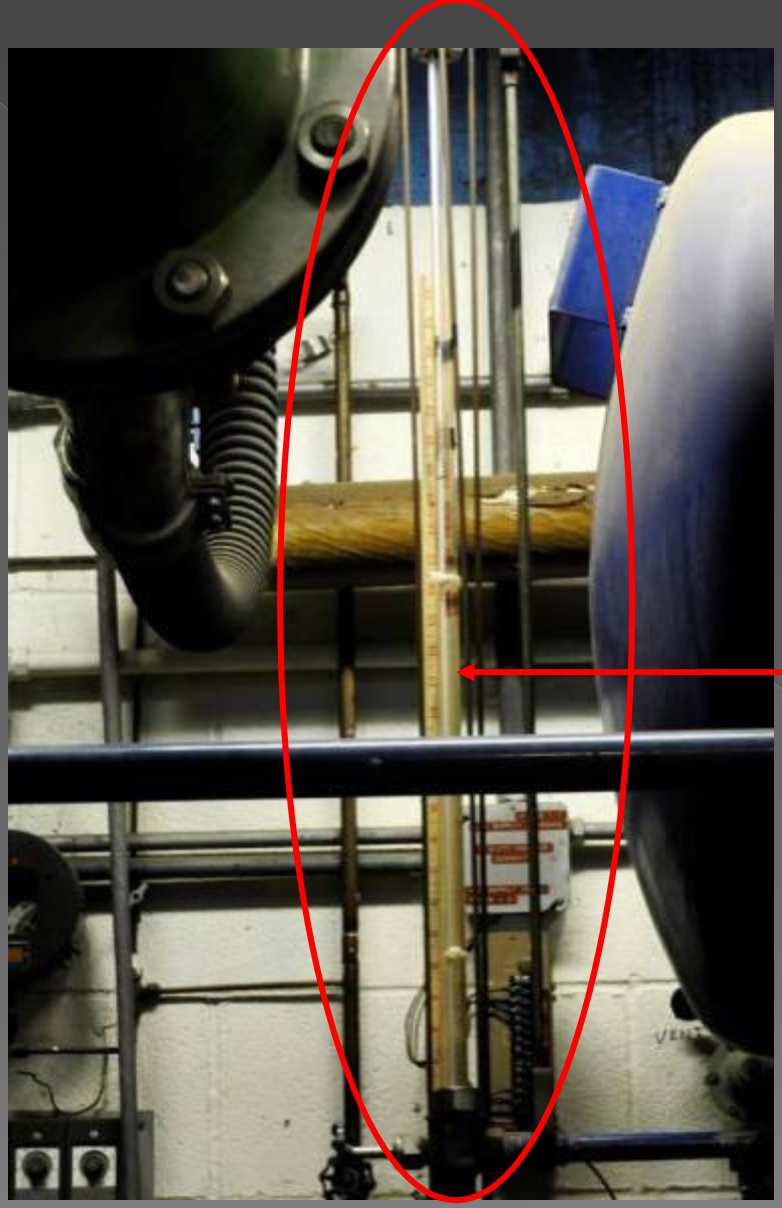
Note: The next few slides will instruct you on how to add water to the MS2LCW System. Currently the MS2LCW System is running with glycol, therefore we are NOT allowed to add water to the system, only the Fluids department techs are allowed to add glycol.

What does it mean to fill the expansion (Surge) Tank?

Every system has an expansion tank to hold water when the volume fluctuates, cold contracts and hot expands, the water has to go Somewhere. It also acts as a buffer for leaks. Because of the leaks, small and large, we will occasionally need to add water to the expansion tank. The expansion tank is a large oval (normally) blue tank that is in the LCW room and usually near the ceiling. On one side of the tank there is a glass tube, about 1/2 inch in diameter and about 36 inches long, with a ruler attached to it to help determine the level of the tank and how much water needs to be added. The Water Works Group has attached 3 tie wraps on the glass tube, a low level, a high level, and a mid point. The mid point tie wrap should line up with the Surge Tank Alarm. So when the level falls below the middle tie wrap an alarm will happen on Acnet, saying we need to add water to the expansion tank. We normally fill it up about 6-8 inches, the level will be above the mid point mark.

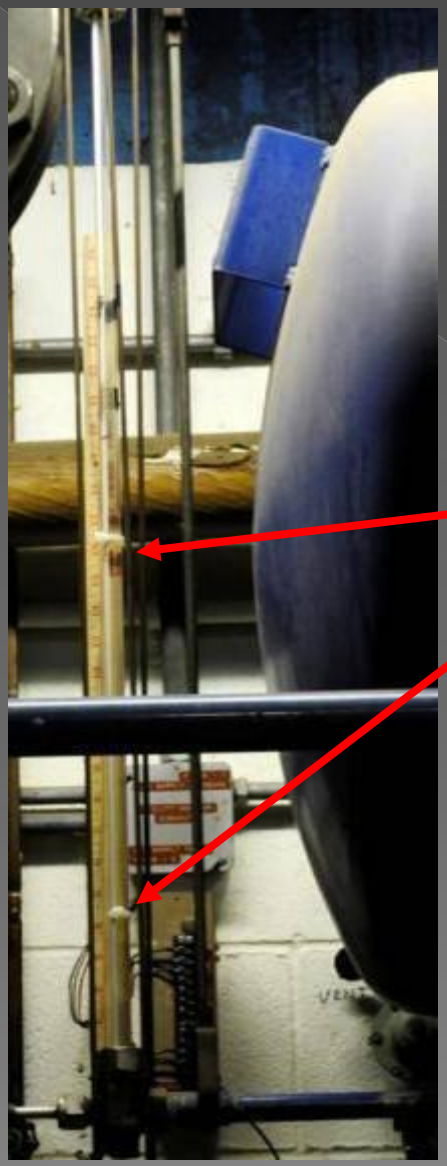
The next few slide will explain filling the expansion tank for the MS2 LCW system using pictures.

The expansion tank is on the ceiling near the east wall.

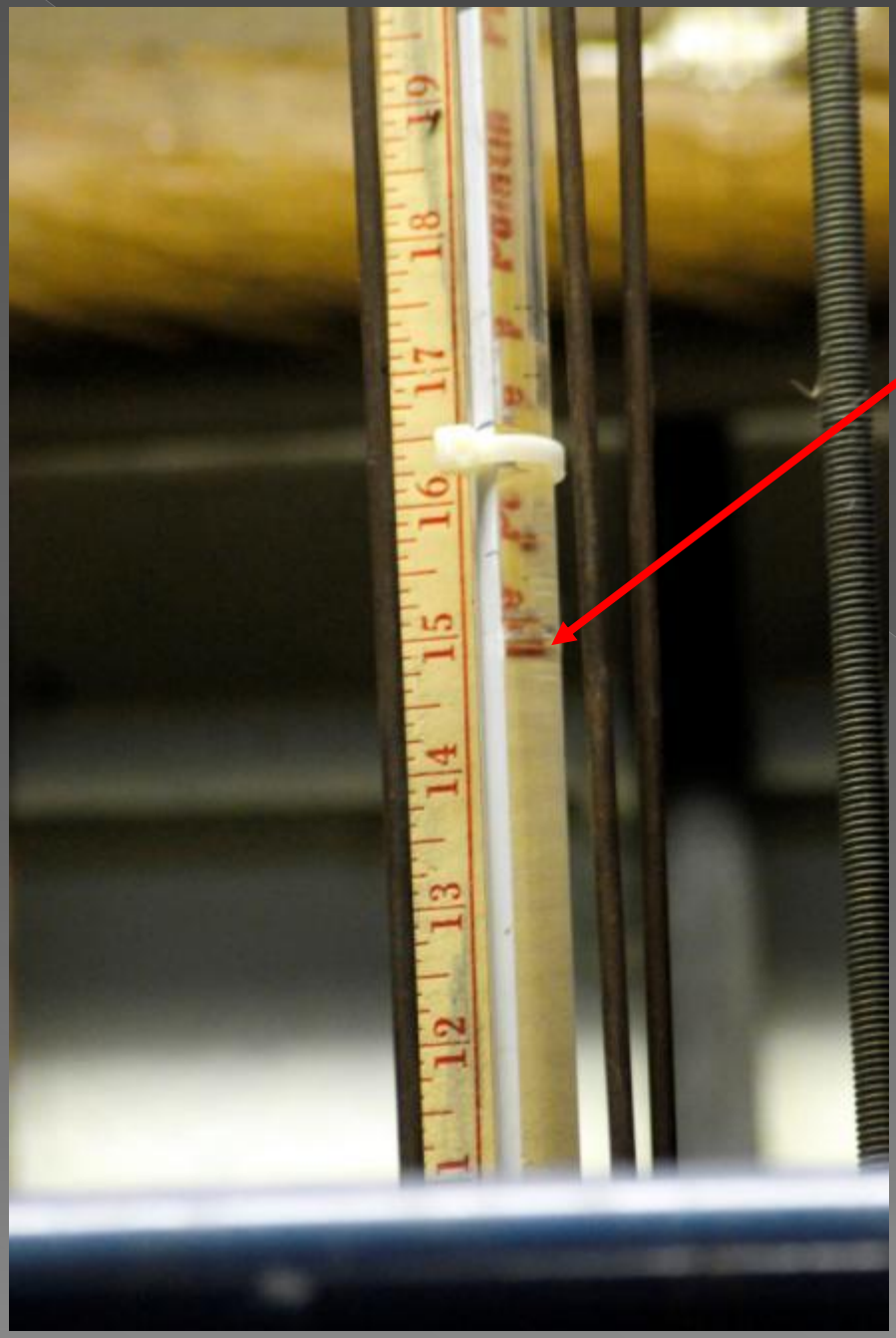


Sight glass

A closer picture of the expansion tank. See the sight glass for filling the tank on the right side of the tank.



Here are the 3 tie wraps, oops MS2 only has 2 tie wraps.



Here we see the level below the mid level tie wrap.

Which means you will need to add water to the expansion tank.

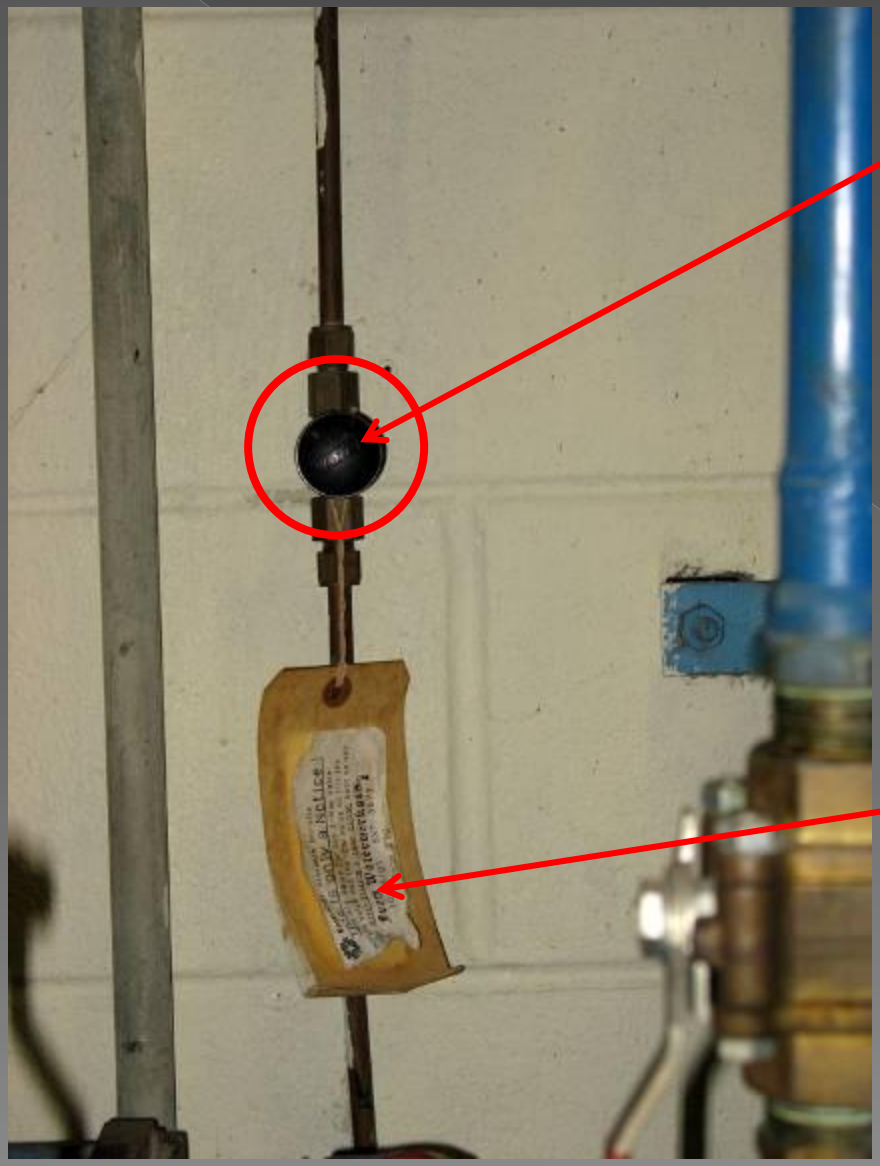
To add water to the expansion tank, we will need to open 2 valves, flip a switch in the Blue box and the expansion tank will start filling.

Okay, now let’s see if we can find those valves.

Now, where are those 2 valves we need to open? In the MS2 LCW room they are located on the west wall above and to the left of the DI bottles, or to the right as you enter the room.

The next 2 slides shows the valves better

The small needle valve is behind the DI bottles, see the tag.

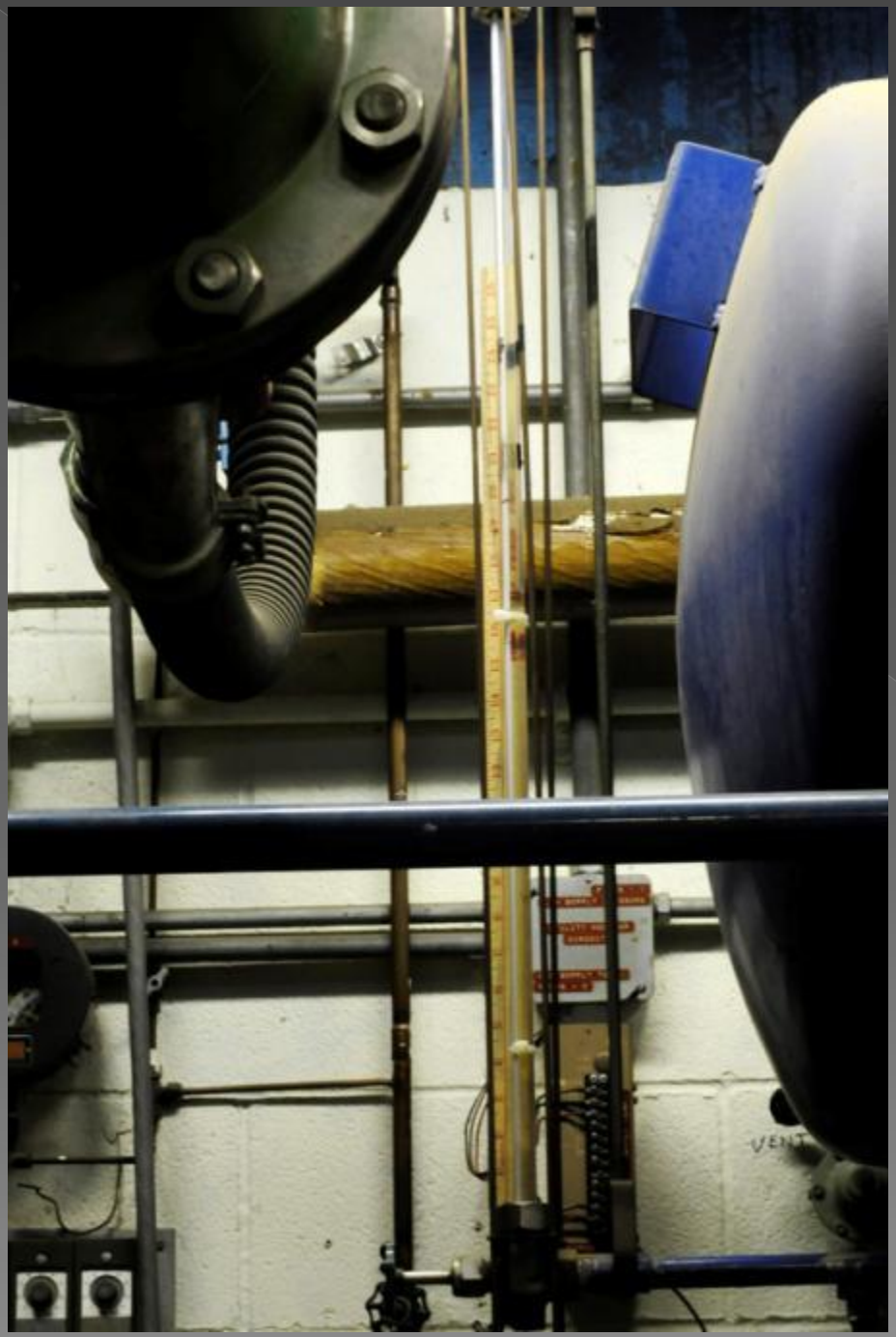


Rotate the black valve
Until it's open all the way.

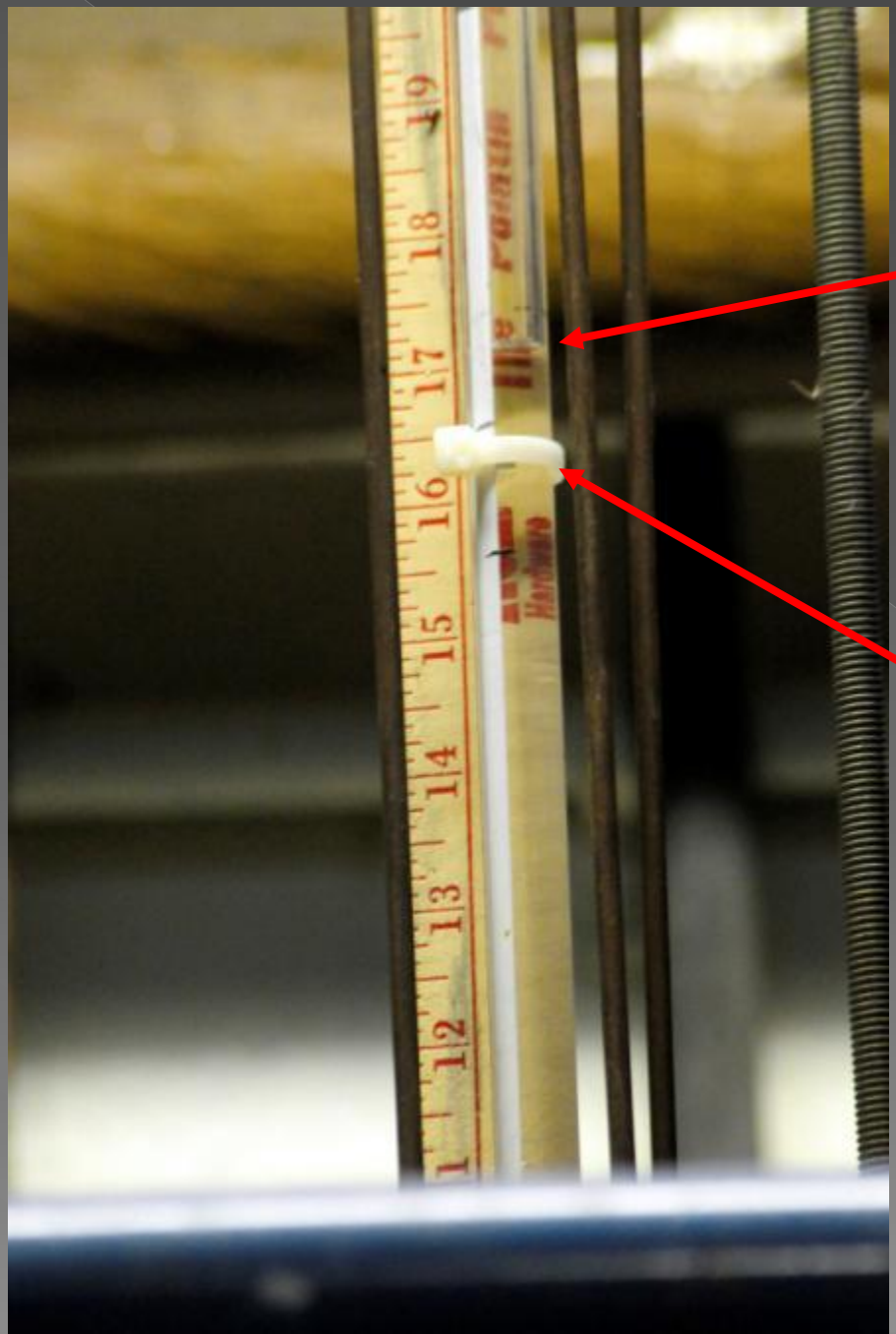
Tag

The second valve is on the ground, to the left of the DI bottles. See the tag, rotate the knob to open the valve.

Back to the expansion tank, after the valves are open, open the door and to the right of the pump switches you will see the Make-up switch, flip it on.



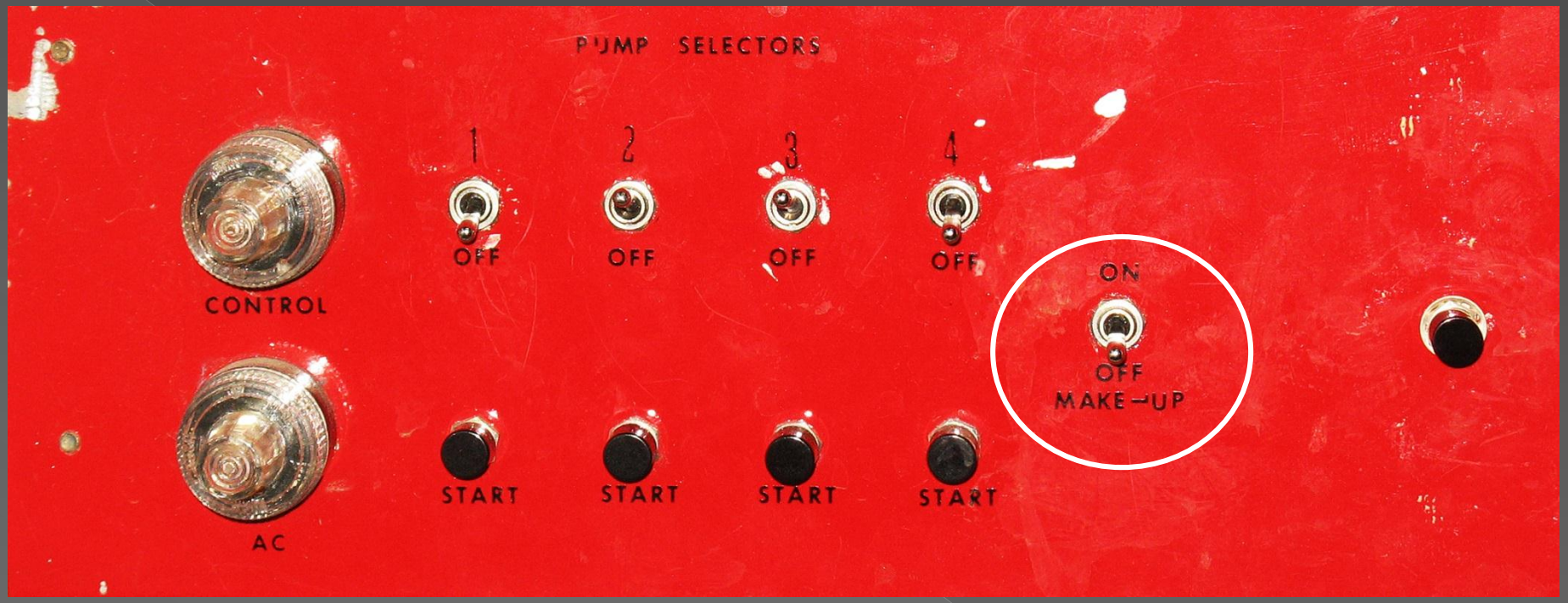
While you are filling the expansion tank, keep an eye on the sight glass, checking the level. Once the slight glass shows the proper level stop.



Here we see the level is above the mid level. When filling watch the Make-up panel for the Off LED to turn green.

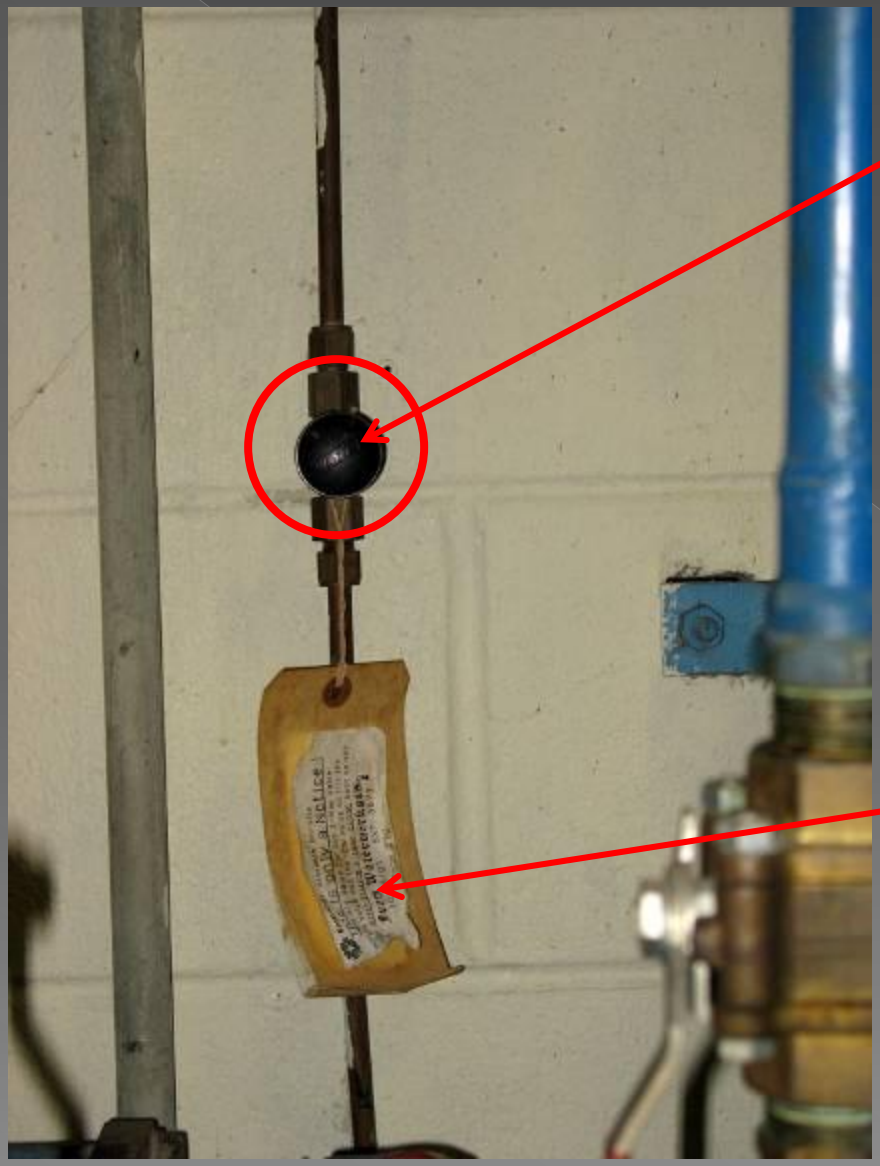
Mid point tie wrap.

The Make-up LED should be OFF.



Flip the Make-up switch to Off.

The small needle valve is behind the DI bottles, see the tag.

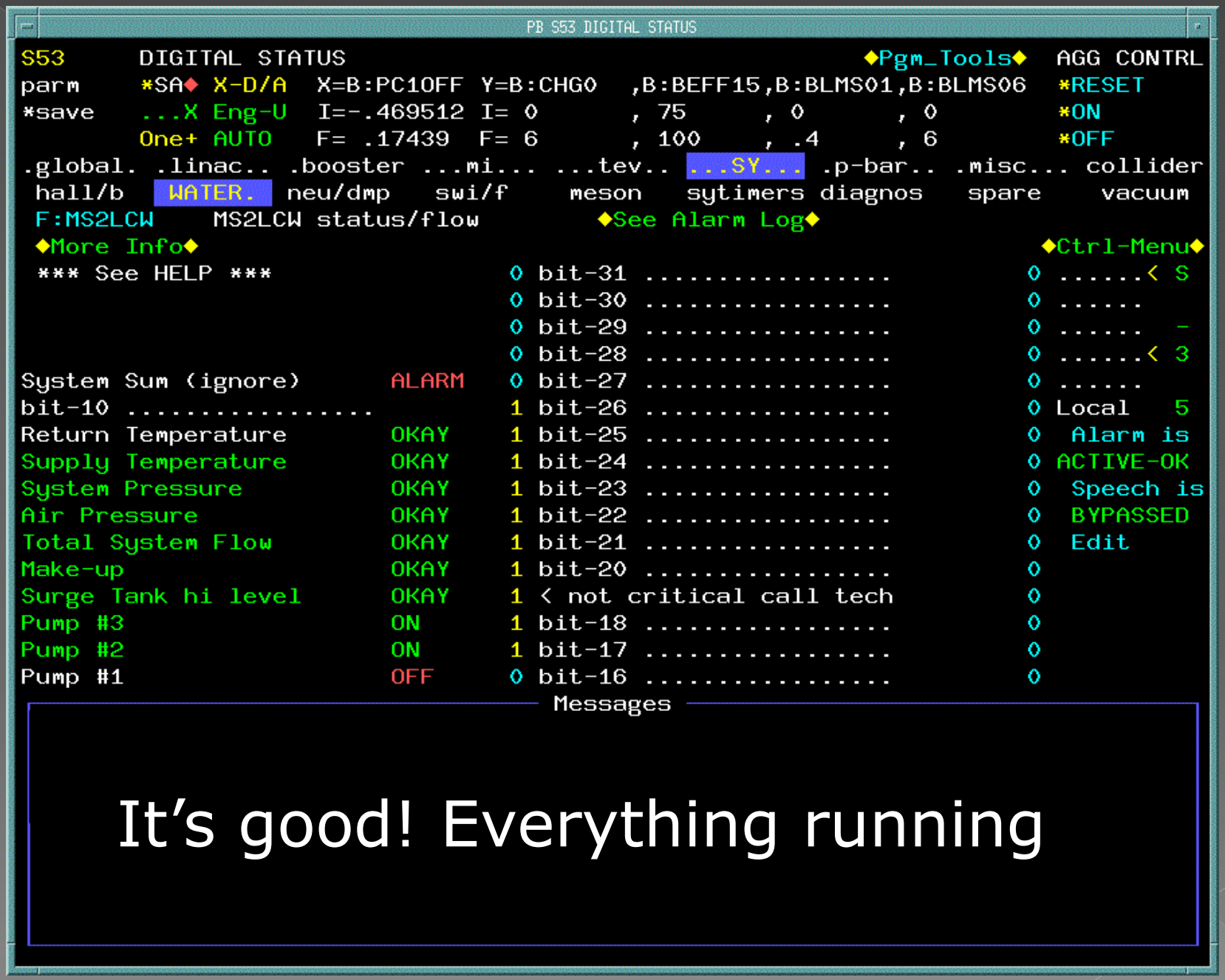


Close the needle value.

Tag

You will also need to close this valve. Now you are fininshed.

da Tag



It’s good! Everything running

da End, stay cool ……